



Name: _____
 Mr. Tiénou-Gustafson & Mr. Bielmeier
 Geometry, Period _____
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HW60_Product_vs_Power_Exponent_Rules

**Geometry
Homework**

Form A

Rewrite the following as single exponent using product rule:

Product Rule

Example: $3^2 \times 3^4 = 3^{2+4} = 3^6$

Use product rule and rewrite each expression as single exponent.

1) $(-12)^4 \times (-12)^{-6}$ 2) $(-2)^3 \times (-2)^8 \times (-2)^{10}$ 3) $5^{-1} \times 5^5 \times 5^3 \times 5^{-4}$

4) $(-9)^7 \times (-9)^2 \times (-9)^8$ 5) $(-7)^{-2} \times (-7)^4$ 6) $14^7 \times 14^{-6} \times 14^{10}$

7) $2g^{-5} \cdot g^9$

8) $3^w \cdot 3^4 \cdot 3^{-7}$

9) $m^4 n^{-2} (3mn^8)$

3^{w+4-7}
 3^{-3w}

10) $3l \cdot 5l^4 \cdot 2l^6$

~~11) $3q^5 \cdot 4(5q^4)^3 \cdot (3q^{-2})^2$~~

12) $6s \cdot 4s^{-5}$

Simplify the Expressions

Use product rule and simplify. Write your answers in positive exponents.

1) $z^2 \cdot z^{-6}$

2) $u^{10} \cdot u^2$

3) $r^{-4} \cdot r^{-3}$

z^{2-6}
 $z^{-4} = \frac{1}{z^4}$

4) $n^{-9} \cdot n^{10}$

5) $k^{-7} \cdot k^{-5}$

6) $s^3 \cdot s^6$

Rewrite the following as single exponent using power rule:

Power Rule

Example: $(4^2)^3 = 4^{2 \times 3} = 4^6$

Use power rule and simplify. Write your answers in positive exponents.

1) $(y^{-7})^{-8}$

$y^{-7 \cdot -8}$
 y^{56}

2) $(b^9)^{-5}$

3) $(v^{-3})^8$

4) $(c^4)^3$

5) $(u^{-8})^{-9}$

6) $(z^9)^{-7}$

7) $(k^8)^2$

8) $(t^{-4})^{10}$

9) $(w^{-9})^{-9}$

10) $(r^{-8}s^5)^{-3}$

11) $(6x^{-9}y^6)^3$

~~12) $(-5-4)^6$~~

$6^3 \cdot x^{-9 \cdot 3} \cdot y^{6 \cdot 3}$
 $6^3 \cdot x^{-27} \cdot y^{18}$
 $\frac{6^3 y^{18}}{x^{27}}$

13) $(g^{-3}h^9)^{-9}$

14) $(2w^{10}x)^7$

15) $(b^8c)^6$